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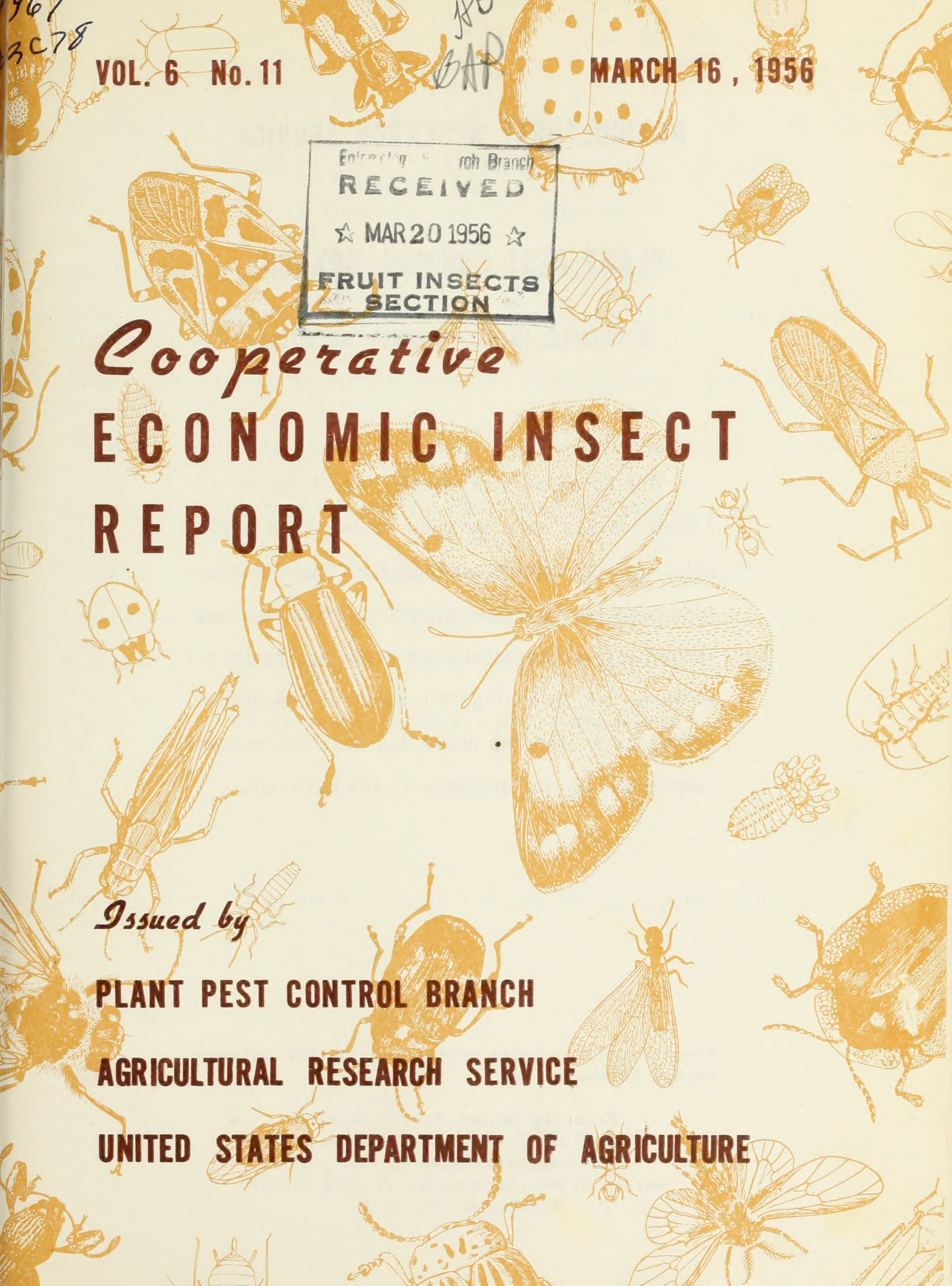

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

ECONOMIC INSECT SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Control Branch
Agricultural Research Service
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Washington 25, D. C.

Volume 6 March 16, 1956 No. 11

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

BOLL WEEVIL survival in Louisiana highest in 20 years. (p. 225).

SPOTTED ALFALFA APHID infestations heavy and causing damage in some Oklahoma counties. (p. 221).

GREENBUG causing damage in occasional fields of Garvin and Comanche Counties, Oklahoma. (p. 221).

CABBAGE APHID and other truck crop insects building up in Rio Grande Valley, Texas. (p. 224).

Estimates of damage by FOREST PESTS in south Arkansas, in 1955. (p. 226).

SCREW-WORM activities, Southeastern States in 1955. (p. 230).

Distribution of VETCH BRUCHID in the United States (Map). (p. 239).

SUMMARY OF INSECT CONDITIONS - 1955 - Missouri. (p. 231).

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Reports in this issue are for the week ending March 9, 1956, unless otherwise designated.

WEATHER FOR THE WEEK ENDING MARCH 9, 1956

Varied conditions characteristic of the period when spring replaces winter were in full force during the past week. The waters of the Allegheny and its tributaries ran rampant over sections of southwestern New York and northwestern Pennsylvania, while the Ohio and its tributaries overflowed the West Virginia and Kentucky lowlands. Tornadoes struck Indiana and Illinois on March 6, resulting in one death and destroying property estimated at $2, 000, 000 in Marion, Ind. Blizzard conditions, with one death in South Dakota, were reported in the north central Great Plains. In addition, heavy snow fell in Maine and local duststorms were reported between the Continental Divide and the Mississippi. Between March 5 and 7 the southeastern quarter of the Nation was experiencing temperatures in the mid-80's or above with 12 or more stations reporting maxima that equaled or exceeded the record for this early in the spring, while Eugene, Oreg., recorded 20.4°F., a new low for this late in the season, and Santa Maria, Calif., airport had a March record low of 29.3°. On March 5, International Falls, Minn., broke an all time high for that month with a 45°F., while on March 12 the same city reported 26° below zero. Average weekly temperatures were below normal in the western part of the Nation and above in the East, the dividing line extending diagonally northeastward from southwestern New Mexico to central Michigan. Cold air extended into extreme southern districts beginning on March 6 in California, then moving eastward and reaching Florida by Saturday.

Freeze damage was reported light except in some areas of Louisiana, Alabama, and California. Weekly precipitation totals were moderate to heavy eastward from the Mississippi Valley, except in southern and central Florida where necessary irrigation is in process. Other areas receiving moderate to heavy amounts were the western coasts of Oregon and Washington and northeastern Wyoming. No significant rain fell in extreme southern California and Nevada, western Arizona, and a large portion of Texas. Wet soils retarded field work in the East, while in the south and central Plains States topsoil is dry and high winds caused some light damage. High winds were also reported to have blown citrus fruit from trees in Arizona. The heavy snows which fell during the period increased depths considerably in South Dakota, southern Minnesota, Wisconsin, Maine, and the New York Adirondacks. At low elevations the greatest depth is now 31 inches at Houghton, Mich. In the higher elevations of the West, Mount Baker Lodge, Wash., reports 380 inches, after considerable packing, and Twin Lakes, Calif., 115. In the East, Greenville and Millinocket, Me., report 44 and 34 inches, respectively. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Damage in occasional fields in Garvin and Comanche Counties. Up to 5,000 per linear foot of row in one field in Garvin County. (Stiles). Very light, general infestations in Caddo, Grady and Garvin Counties. (Coppock). TEXAS - Light to heavy local infestations on small grains in Camp County. Heavy parasite and predator populations expected to control infestations. (Chada). Medium widespread infestations on oats in Kaufman County. (Hawkins). LOUISIANA - Populations remain light in small grains over State with damage not apparent. (Oliver).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Of 22 wheat fields inspected in 11 west-central and south-central counties, 17 were infested. The mite was found in Murray County which is the most southeastern extension in Oklahoma. (Coppock). Wheat fields in southern Payne County showed extremely heavy infestations of approximately 2,000 per linear foot. (Henderson).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Medium, widespread infestations on small grains in Denton County. Damage by heavy, earlier infestations did not materialize. Expected to disappear by March 31. (Chada). Light local infestations on oats and barley in Kaufman County. (Hawkins). Medium, widespread infestations on oats and combination oats and vetch fields in Hunt County. (Hawkins). Light, widespread infestation on small grains in Dallas County. Condition improved. (Milikien).

SPOTTED ALFALFA APHID - CALIFORNIA - Light infestations persisted in Fresno County. Some heavy infestations occurred in Tulare and Kern Counties. Light infestations in Imperial County. (Cal. Coop. Rept., Feb.). Some heavy infestations in Santa Barbara County. Infestations in San Diego County very light. (Cal. Coop. Rept., Mar. 8). OKLAHOMA*- Severe damage to stands of alfalfa in local areas of Stephens, Garvin and Comanche Counties. (Stiles, Coppock). Severe in Muskogee and Wagoner Counties. (Franks). TEXAS - Light local infestations on alfalfa in Rockwall and Kaufman Counties. Light widespread infestations on alfalfa in Delta County. (Hawkins). Medium widespread infestations on alfalfa in Denton County. (Chada). LOUISIANA - Continues to infest alfalfa over northern area. Predaceous insects, primarily lady beetles, are apparently keeping the populations down. (Oliver).

APHIDS - GEORGIA - Heavily infesting alfalfa in Putnam County. (Johnson).

LEAFHOPPERS (Empoasca spp.) - LOUISIANA - Lightly infesting burclover, sweetclover and alfalfa over the State with migration northward. (Oliver). TEXAS - Heavy, widespread infestations believed to be E. fabae on young alfalfa in Denton County. (Chada).

*Local, heavy in Choctaw, Okfuskee, Pantotoc, Murray and Coal Counties. (Flora).

TARNISHED PLANT BUG (*Lygus lineolaris*) - LOUISIANA - Populations light and widespread in alfalfa over northern area. (Oliver)

CLOVER ROOT CURCULIO (*Sitona hispidula*) - NORTH CAROLINA - Adults present in an alfalfa field in Guilford County. (Jones).

CLOVER LEAF WEEVIL (*Hypera punctata*) - UTAH - Larvae in several Washington County alfalfa fields. (Knowlton, Mar. 6).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - GEORGIA - Light infestations of adults on alfalfa in Putnam County. (Johnson).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - LOUISIANA - In alfalfa in Natchitoches, Bossier and Tensas Parishes. (Oliver).

PEA APHID (*Macrosiphum pisi*) - LOUISIANA - Populations exist State-wide in legume crops with some infestations ranging up to 1500 per 100 sweeps. (Oliver).

GREEN CLOVERWORM (*Plathypena scabra*) - LOUISIANA - Infesting clover in Jefferson Davis Parish at 16 per 100 sweeps and alfalfa in Natchitoches and Bossier Parishes at 3-5 per 100 sweeps. (Oliver).

GASTROPODS - LOUISIANA - Snails at 25 per square foot and slugs at six per square foot are killing spots of white clover approximately two feet square with up to 30 such spots per acre in Jefferson Davis Parish. (Oliver). NORTH CAROLINA - Large numbers of slugs appearing on lawns and gardens in Wautauga County. (Tuckwiller).

A MITE (*Petrobia apicalis*) - LOUISIANA - Populations increasing in vetch and white clover in southern area. (Oliver).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - LOUISIANA - Infesting white clover in Jefferson Davis Parish at four per 100 sweeps. (Oliver).

VARIEGATED CUTWORM (*Peridroma margaritosa*) - LOUISIANA - Infesting approximately 200 acres of white clover at one per two square feet in Jefferson Davis Parish. A lighter infestation in 20 acres in Acadia Parish. (Oliver).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - OKLAHOMA - Damage severe in local isolated areas of Blaine, Major and Kingfisher Counties. Extensive spraying in Blaine County. (Coppock).

A CRANE FLY (possibly *Tipula simplex*)- CALIFORNIA - Very severe damage to pasture land in parts of Marin County. (Cal. Coop. Rept., Feb.).

FRUIT INSECTS

BLACK SCALE (*Saissetia oleae*) - CALIFORNIA - Heavy infestations in 14,500 acres of apricot orchards in Santa Clara County. (Cal. Coop. Rept., Mar. 8).

WESTERN PEACH TREE BORER (*Sanninoidea exitiosa graefi*) - CALIFORNIA - Infestation of 6,000 young trees in Alameda County. (Cal. Coop. Rept., Feb.).

EUROPEAN FRUIT LECANIUM (*Lecanium corni*) - CALIFORNIA - Infestations from a trace to heavy in a few Napa County prune orchards. Heavy infestations reported in 41,000 acres of prunes in Santa Clara County. (Cal. Coop. Rept., Mar. 8).

ITALIAN PEAR SCALE (*Epidiaspis piricola*) - CALIFORNIA - Infestations moderate on 35,000 acres of prunes and 7,500 acres of walnuts in Santa Clara County. Infestations ranged from light to medium in Napa County prune orchards. (Cal. Coop. Rept., Mar. 8).

ORCHARD MITES - CALIFORNIA - Eggs of *Bryobia praetiosa* and *Metatetranychus ulmi* ranged from very light to medium in prune and pear orchards in Napa County. (Cal. Coop. Rept., Mar. 8).

ORCHARD MITES - Eggs of *Bryobia praetiosa* and *Metatetranychus ulmi* ranged from very light to medium in prune and pear orchards in Napa County. (Cal. Coop. Rept., Mar. 8).

OLIVE SCALE (*Parlatoria oleae*) - CALIFORNIA - Light infestations in deciduous fruit orchards in Merced County. Moderate infestations in deciduous orchards and some medium infestations of walnut and olive orchards in Fresno County. Infestations of deciduous fruits from light to heavy and medium infestations in olive orchards in Tulare County. (Cal. Coop. Rept., Feb.).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - CALIFORNIA - Medium infestations in deciduous orchards in Tehama County. (Cal. Coop. Rept., Feb.). Some damage to peach trees in San Joaquin County. (Cal. Coop. Rept., Mar. 8).

OLEANDER SCALE (*Aspidiotus hederae*) - CALIFORNIA - Medium infestations in olive orchards in Tulare County. (Cal. Coop. Rept., Feb.).

YELLOW SCALE (*Aonidiella citrina*) - CALIFORNIA - Light to severe infestations in citrus orchards in Tulare County. Parasites plentiful in some orchards. (Cal. Coop. Rept., Feb.).

A NITIDULID (*Lobiopa insularis*) - LOUISIANA - Found in decaying oranges in southern part of strawberry belt in Tangipahoa Parish. (Oliver).

CITRUS WHITEFLY (*Dialeurodes citri*)—LOUISIANA - Infesting several orange trees in Tangipahoa Parish with up to 62 per leaf. (Oliver).

CITRUS RED MITE (Metatetranychus citri) - LOUISIANA - Populations heavy on orange trees in Tangipahoa Parish. (Oliver).

BROWN GARDEN SNAIL (Helix aspersa) - CALIFORNIA - Medium infestations in some avocado orchards in Orange County. (Cal. Coop. Rept., Mar. 8).

AN ERIOPHYID MITE (Eriophyes prunidemissae) - UTAH - In chokecherry terminal buds at Providence Canyon, Utah. This appears to be the farthest east record for this species. (Det. H. H. Keifer). (Knowlton).

TRUCK CROP INSECTS

SEED-CORN MAGGOT (Hylemya cilicrura) - ARIZONA - Larvae boring into roots and basal parts of lettuce leaves in one 20-acre field west of Peoria, Maricopa County, Feb. 28. Infestation spotted and caused about five percent damage. (Ariz. Coop. Rept.). OKLAHOMA - Adult infestations were observed on spinach. (Walton, Hensley).

GREEN PEACH APHID (Myzus persicae) - OKLAHOMA - Populations ranging above 100 per leaf in several spinach fields in Bixby area. (Walton, Hensley). VIRGINIA - Building up on spinach in southeastern area and requiring treatment. (Hofmaster).

SOUTHERN BEET WEBWORM (Pachyzancla bipunctalis) - OKLAHOMA - Early instars infested less than one percent of spinach plants. (Walton, Hensley).

Truck Crop Insect Situation, Rio Grande Valley, Texas

CABBAGE APHID destructive to untreated cabbage and increasing rapidly. CABBAGE LOOPER building up to damaging numbers on cabbage. FALSE CHINCH BUG (Nysius sp.) continues to infest turnips. MELON APHID requiring control in a few fields of cantaloups. DARKLING BEETLES a serious problem in many fields of cantaloups during past two weeks. A few HARLEQUIN BUGS found in one field of turnips. (Wene, Deer).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - VIRGINIA - Light on Brussels sprouts in southeastern area. (Hofmaster).

TOMATO PINWORM (Keiferia lycopersicella) - FLORIDA - Larvae averaging five per leaf of tomatoes at Miami, Dade County, Feb. 23. (Dowling).

BEAN WEEVIL (Acanthoscelides obtectus) - IDAHO - In all stages, attacking 45,000 pounds of red kidney beans and pinto beans being held in the Nampa State School Storage. (Portman).

ARTICHOKE PLUME MOTH (*Platyptilia carduidactyla*) - CALIFORNIA - Infested 15 percent of artichokes in Monterey County. (Cal. Coop. Rept., Feb.).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - LOUISIANA - In complex with *Agrotis ypsilon*, causing severe damage to seedling peppers in Tangipahoa Parish. Some fields being replanted. (Oliver). GEORGIA - Larvae lightly infesting tobacco in plant beds in Emanuel, Candler and Bullock Counties. (Johnson).

STRAWBERRY ROOT APHID (*Aphis forbesi*) - LOUISIANA - Light to moderate infestation of strawberry foliage in Tangipahoa Parish. (Oliver).

SPIDER MITES - LOUISIANA - Infestations of *Tetranychus desertorum* and *T. lobosus* infesting strawberries in Tangipahoa Parish. Treatment under way. (Oliver).

BLACK CUTWORM (*Agrotis ypsilon*) - LOUISIANA - Populations in strawberries decreased considerably in Tangipahoa Parish, with only an occasional larva. (Oliver).

COTTON INSECTS

PINK BOLLWORM (*Pectinophora gossypiella*) - OKLAHOMA - Samples from 292 gins in 51 counties consisting of 275,187 individual seeds, showed three live and 60 dead larvae. The live larvae were reported from McClain, Caddo, and Comanche Counties. (Bower). TEXAS - Debris was inspected in 72 counties of which 40 were found infested with an average of 7.2 live pink bollworms per 100 bolls inspected. For the same period of 1955 there were 4.88 live pink bollworms per 100 bolls inspected. (Pink Bollworm Cont. Proj. Feb. 16-29).

Boll Weevil Hibernation and Survival Counts, Louisiana, Spring, 1956

Collections of woods trash were begun February 27 and examinations completed March 9. An average of 3654 weevils per acre found in 200 samples collected near Tallulah, Madison Parish. This was 4.3 times the average number found during the past 20 years and 1.7 times the number found during the spring of 1950, the year of the greatest number found in the 20-year period. Number of weevils per pint of trash ranged from 242 to 10,164. An average of 1884 live weevils per acre found in 140 samples collected in nine additional parishes. In five parishes, 3.6 times as many weevils were found than during the spring of 1955 in those parishes. In all 340 samples collected in Louisiana, an average of 2925 live weevils per acre were found, compared with 9621 in 330 samples in the fall of 1955. Average survival was 30 percent. (Gaines, Pfrimmer, Newsom et al.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

Estimated Losses Due to Insects, South Arkansas, 1955

Reports were received covering 3,108,000 acres of timber, primarily loblolly and shortleaf pine. According to this information, insects were responsible for a loss of 20,033,544 board feet of timber on 7,503,200 acres, the State total of loblolly and shortleaf pine. Net loss, after salvage, including cost of control was estimated at $525,224 compared with a loss of $832,500 in 1954. Complete figures of losses to new plantings were not available but value of such losses was set at $8550 for those reporting attacks by several weevils. Control costs estimated at $40,295 by those reporting. No hardwoods included in report. (L. O. Oliver).

Forest Pest Situation, Arkansas, March 1

Egg deposits of PINE SAWFLIES found in area northeast of Kingsland, Cleveland County, indicate populations in area may be heavier than in 1955. (Bell, Reynolds). Heavy egg deposits found southwest of Warren. (Bell). Active near Jasper, Newton County. (Hopson). Activity of IPS BEETLES is static and scattered in single trees or small clumps. TURPENTINE BEETLE activity less than *Ips* beetles. A PINE APHID, possibly pine leaf aphid, infestation heavy on 8000 acres in west-central area. PINE WEBWORM scattered throughout plantations in the south Yell and Perry County area. First activity of PALES WEEVIL in plantations in Ashley County. (Ark. State For. Comm).

IPS BEETLES - Virginia - In complex with *Dendroctonus* sp. killed about 15 white pines on a 10-acre plantation in Mecklenburg County and about 10 other trees dying. (Morris, Copley).

A PINE SCALE (*Pseudophilippia quaintancii*) - NORTH CAROLINA - Moderate, local infestation in white pine in Cabarrus County. (Allen).

AN APHID (*Cinara tujafilina*) - OKLAHOMA - Abundant on arborvitae in Oklahoma City. (Bower).

GREEDY SCALE (*Aspidiotus camelliae*) - CALIFORNIA - Medium infestations on euonymus in San Joaquin County. (Cal. Coop. Rept., Mar. 8).

RED WAX SCALE (*Ceroplastes rubens*) - FLORIDA - Infestation on aralia averaged 20 per leaf and also found on philodendron and spindle-tree at Miami, Dade County. (Shepard, Daigle).

ORANGE TORTRIX (*Argyrotaenia citrana*) - OREGON - Severely infested a planting of carnations in a Portland greenhouse, February. (Nicolaison).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - MISSISSIPPI - New infestation found in iris planting at Cleveland, Bolivar County. (White-fringed Beetle Program, Feb.).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Callitroga hominivorax) - NORTH CAROLINA - Infestation in 12 lambs castrated about Feb. 20 in Davie County. A few other cases reported by veterinarians. (Williams).

SECONDARY SCREW-WORM (Callitroga macellaria) - NORTH CAROLINA Infestation associated with screw-worm infestation in Davie County. (Dogger).

CATTLE LICE - UTAH - Control continues in several counties.(Knowlton).

COMMON CATTLE GRUB (Hypoderma lineatum) - VIRGINIA - Still appearing in backs of beef cattle at Front Royal, Warren County. (Turner, Raffensperger).

HOUSE FLIES - ARIZONA - Flies, mainly Musca domestica, population indices of two small towns in southeast Maricopa and northwest Pinal Counties: Average of five highest grill counts in 9 blocks for week of Feb. 26-Mar. 3. : 49.6. (Arizona Coop. Rept.)

BENEFICIAL INSECTS

LADY BEETLES - LOUISIANA - Lady beetles, mainly Hippodamia convergens, at 26 per 100 sweeps of alfalfa in Natchitoches Parish. (Oliver).

A KLAMATHWEED BORER (Agrilus hyperici) - IDAHO - Larvae boring in roots of klamathweed near Lewiston, Idaho, for first time since introduction into State in 1953. (Barr).

MISCELLANEOUS INSECTS

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Becoming generally abundant and annoying to residents in Baltimore, Harford and Montgomery Counties. (U. Md. Ent. Dept.). VIRGINIA - Beginning to emerge from hibernation. (Rowell). TENNESSEE - Annoying around homes in some parts of State. (Mullett).

ELM LEAF BEETLE (Galerucella xanthomelaena) - MARYLAND - Annoying in houses in Baltimore. (U. Md. Ent. Dept.). VIRGINIA - Beginning to emerge from hibernation. (Rowell).

POTATO TUBERWORM (Gnorimoschema operculella) MARYLAND - Infesting potatoes in Montgomery County. (U. Md. Ent. Dept.).

POWDER POST BEETLES (Lyctus sp.) - OREGON - Caused considerable damage to two oak floors in a home at Roseburg, February 29. (Capizzi).

TERMITES - UTAH - Infesting several stores and other business buildings at St. George. Home found infested at Logan. (Knowlton). MARYLAND - Adults swarming; infestations reported from Baltimore and Prince Georges Counties. (U. Md. Ent. Dept.). NORTH CAROLINA - First flight of *Reticulitermes flavipes* noted March 1, in Wake County. (Dogger).

Some of the More Important Insects for 1956 - a Supplement

ARKANSAS - Boll weevil, corn earworm, termites, bark beetles, cutworms, aphids, three-cornered alfalfa hopper, cattle grubs, cockroaches, saw-toothed grain beetle.

ADDITIONAL NOTES

MISSISSIPPI - SPRINGTAILS - Extremely large numbers observed in alfalfa in Noxubee County. PEA APHID - Causing discoloration of alfalfa in a field in Noxubee County. (Hunsucker). A PINE APHID (*Cinara* sp.) - Reported numerous in various counties. (Bennett).

INDIANA - ELM LEAF BEETLE and BOXELDER BUG - Invading houses in Bloomington during unseasonably warm period in March. (Young).

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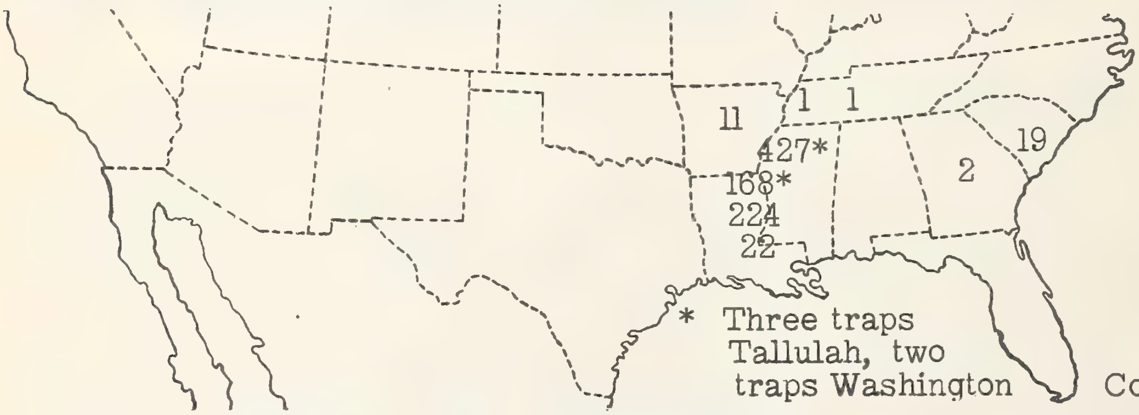
ARMYWORM (*Pseudaletia unipuncta*) Situation



* Three traps Tallulah, two traps Washington County.

Figures = number of moths trapped.

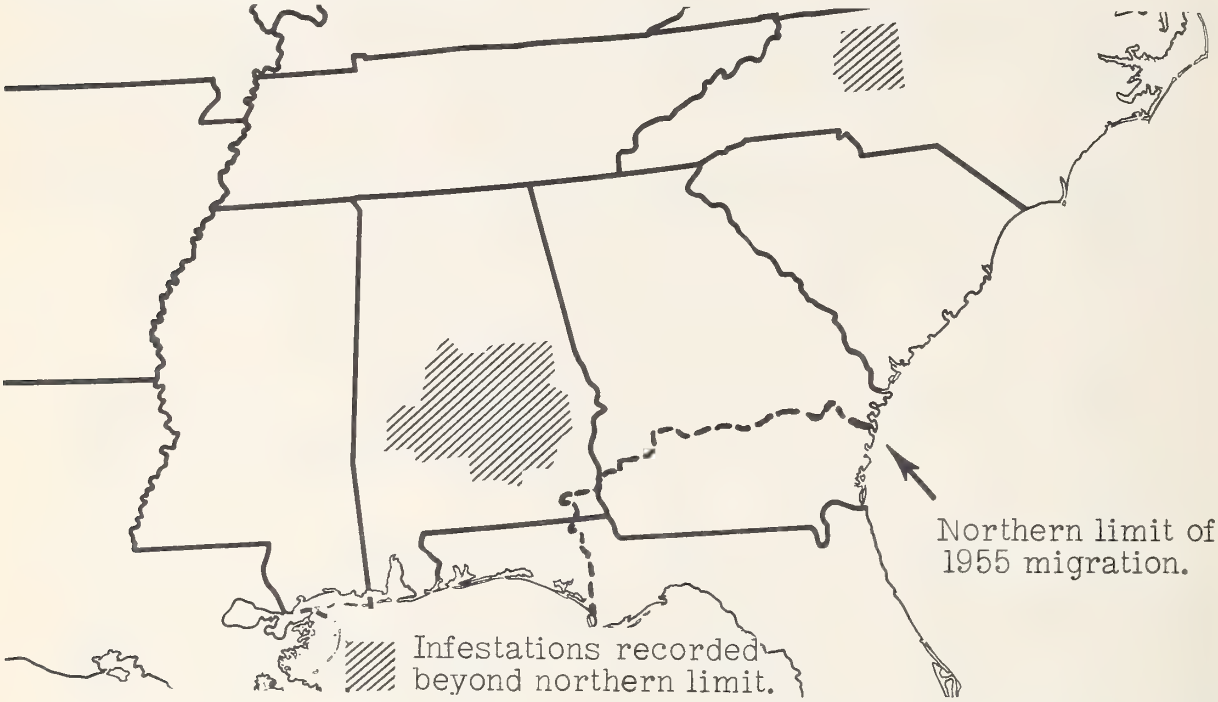
LIGHT TRAP COLLECTIONS

	Pseudal. unipunc.	Prod. ornith.	Agrot. ypsilon	Perid. marg.	Heliothis zea	Feltia subt.
LOUISIANA						
B. Rouge 3/3-9	22	7	11	8	3	47
Franklin 3/1-6	224	49	14	6	13	8
Tallulah * 3/3-9	168	51	56	57		14
ARKANSAS						
Stuttgart 2/9-29	11		16			
Varner 2/9-29			9	2		
MISSISSIPPI						
Washington Co.* 3/1-8	427	302	41	223	7	
Oktibbeha Co. 3/5-9	20	11	4	2		
TENNESSEE						
Madison Co. 3/1-6	1	2	1			
Maury Co. 3/1-6	1					
ALABAMA						
Auburn 3/5-10	3					
FLORIDA						
Gainesville 3/1						1
GEORGIA						
Tift 2/25-3/2	2					1
SOUTH CAROLINA						
Charleston 2/13-19	18	2	20	2		42
2/20-26	1		3			5

*Three traps Tallulah; two traps Washington Co.

Screw-Worm Activities in Southeastern States - 1955

Surveys were conducted in October, 1955, and in early January, 1956, to determine the extent of screw-worm activities through natural migration from its overwintering area in Florida into the Southeastern States, and to determine the extent of infestations that occurred beyond the extent of natural migration. Information was obtained from State and Federal livestock inspectors, veterinarians, county agents, farmers and ranchers. Natural migration of flies from the overwintering area in peninsular Florida was rather slow due to cold weather in early 1955. In general, infestations in Florida were normal or slightly lower than for average years. The infestations extended to all northern counties and as far west as Gulf, Calhoun and Jackson Counties. In Georgia, counties of only about the southern third of the State were infested in 1955. Counties of south central Georgia, comprising the hog-corn-peanut area appeared to be the most heavily infested.



Northern limit of 1955 migration.

▨ Infestations recorded beyond northern limit.

Apparently only Houston County in southeast Alabama was infested from naturally-migrating flies. An extended area in central Alabama was infested in the fall. Heaviest infestations were in Autauga, Lowndes and Montgomery Counties and less severe in adjoining counties. Information obtained indicated that the infestation in central Alabama resulted from importing infested feeder cattle into the area from infested areas of Texas or south Florida. An isolated infestation reached epidemic proportions in west central North Carolina during the late fall. An area at the Davidson-Davie County line was most heavily infested and adjoining counties became infested. The infestation was far removed from the summer migration line, indicating it resulted from importation of infested animals. Remedies for control were adequate in all areas contacted. (C. C. Skipper, Feb. 1, 1956).

SUMMARY OF INSECT CONDITIONS - 1955

MISSOURI

Reported by G. W. Thomas

Insect Outbreak Highlights

ARMYWORMS occurred in outbreak numbers over the southwest quarter and in several counties bordering the Missouri River in the central part of the State. GRASSHOPPERS began the season in outbreak numbers but by the mid-summer trouble areas were confined largely to the southwest and northern half of the State. GARDEN WEBWORMS occurred generally on alfalfa in near outbreak proportions. COTTON FLEAHOPPER and BOLLWORM caused considerable trouble over scattered areas or individual fields of the cotton southeast. Crop insect pests did not occur in numbers or cause damage equal to that of 1954.

New Records for the State

VEGETABLE WEEVIL (Listroderes costirostris obliquus) caused damage to commercial tomato crops and gardens in Stone and Christian Counties. The present infestation also includes Taney, Barry and McDonald Counties. EUROPEAN CORN BORER (Pyrausta nubilalis) was found boring in the main stem of cotton plants in New Madrid County, August 9. Within a week borers and borer-damaged stalks were found in Butler, Stoddard, Scott, Mississippi, Pemiscot and Dunklin Counties with infested fields showing 0.5 - 1.5 percent of stalks damaged. In early September borers were recovered from the bolls. First SPOTTED ALFALFA APHID specimens were swept from alfalfa in Greene County on September 20 and within the following two weeks almost all counties in the western half of the State were infested.

Corn Insects

SEED CORN MAGGOT (Hylemya cilicrura) and SEED CORN BEETLE (Agonoderus lecontei) caused only light injury in scattered areas due largely to treated seed and soil insecticides. CLAY-BACKED CUTWORM (Agrotis gladiaria) was light in numbers in southeast, northwest, and along the Missouri River counties. Generally light infestations of BLACK CUTWORM (Agrotis ypsilon) occurred with most injury confined to the Missouri River bottom counties in central and northwest areas. Heavy outbreaks of DINGY CUTWORM (Feltia subgothica) occurred generally over the western half of the State in pastures and legumes early in the season. By mid-May, heavy damage occurred to small corn over the central and northwest areas resulting in replanting of several fields in the Missouri River bottom. ARMYWORM (Pseudaletia unipuncta) damaged margins of a few corn fields bordering barley in the central and west central areas.

WIREWORMS (Melanotus spp. and probably several others) caused light to heavy damage more generally than in past years with heavier damage in the northern half of the State. Stand reduction averaged about 4.5 percent. SAND WIREWORM (Horistonotus uhlerii) caused moderate to heavy damage to corn in the extreme southeast area. This was first reported damage in 8-10 years. BILLBUGS (*Calendra* spp.) caused light to moderate feeding injury generally with a few newly-cleared bottom fields destroyed in Holt and Andrew Counties. Injury averaged 6.4 percent. CORN ROOT APHID (*Anuraphis maidi-radicis*) caused light damage in scattered fields in the northwest area. CORN FLEA BEETLE (*Chaetocnema pulicaria*) was more abundant than ever, resulting in a high incidence of Stewart's disease. Counts from April to August averaged 4-5 beetles per plant. Heaviest infestation was the western half of State. Light infestations of YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) occurred on small corn over the State in June. COMMON STALK BORER (*Papaipema nebris*) caused very light marginal injury in early June in widely scattered areas. Light larval damage by SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) occurred in scattered areas of the southern half of State. Adults were numerous on several crops in August and September. NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) infestations and damage were heavier than ever and now occur generally except in the southwest area. Adults retarded pollination in several fields. CORN LEAF APHID (*Rhopalosiphum maidis*) infestations of 35 to over 100 aphids per plant began in early June and continued through August in scattered fields throughout State. CORN EARWORM (*Heliothis zea*) larvae in June injured whorls of corn over the southern half of the State and gradually spread northward. Damaged stalks averaged 8-9 percent. Damage to ears of field corn averaged about 70 percent over the State with 6 percent of the total grain being either directly or indirectly destroyed by their feeding.

CORN SAP BEETLE (*Carpophilus dimidiatus*) larvae and adults damaged ears of both field and sweet corn by mid-July with heavier infestations in the south half of State. Damaged ears averaged 8 percent. FALL ARMYWORM (*Laphygma frugiperda*) infestations of 32-85 percent of small corn appeared in southwest area in late July and over State continuing until late September. Stalk breakage and almost two percent ear-droppage occurred. CHINCH BUG (*Blissus leucopterus*) became troublesome in early July in scattered areas with southeast and northwest areas more heavily infested. Spots in a few fields of northwest were totally destroyed. Fall hibernation survey showed 15 counties with very severe numbers, 6 with severe and 14 with moderate numbers. GRASSHOPPERS (*Melanoplus differentialis*, *M. bivittatus*, *M. femur-rubrum* and *M. mexicanus*) by mid-June caused marginal damage to corn in the southwest area and gradually increased over the western half of the State, reached a peak in northwest area early in August. Several fields in southwest, west central, and northwest areas had pollinization stopped on as manv as 15 marginal rows. SOUTHWESTERN CORN BORER (*Zeadiatraea** *grandiosella*) overwintering populations were reduced by weather to lowest point in last three years. EUROPEAN CORN BORER fall abundance survey averages were slightly lower than last year with a mean of 15 comparable counties with 168 borers as compared with 177 borers per 100 stalks in 1954 (CEIR 5(52):1133).

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*Box, H.E. 1955. Roy. Soc. Ent. London Proc. Ser. B: Taxonomy 24(11/12):197-200.

Grain Sorghum Insects

Moderate, uniform infestations of CORN LEAF APHID occurred from late July to September in southwest and north areas of State. CHINCH BUG infestations, early, ranged from 2 to over 200 per foot of row in southwest area to late season counts of 12 to over 500 per plant in northwest area. SOUTHERN CORN ROOTWORM adults caused light damage in grain heads over much of the State. GRASSHOPPERS caused some damage to developing heads especially along field margins in southwest and northern half of State. A brood of CORN EARWORM occurred on the developing grain sorghum heads over much of the State in September. Average counts of 1-3 larvae per head reduced yields in several fields by 4-5 percent.

Small Grain Insects

WINTER GRAIN MITE (*Penthaleus major*) ranged from 1-13 per foot of drill row early, then built up rapidly in late March to damaging numbers ranging from 8-65 mites per foot of drill row and to over 200 per square foot of pasture grasses. No report or evidence of infestations of GREENBUG (*Toxoptera graminum*) occurred during the year. Leafhoppers, especially SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) damaged new growth in late March, especially along field margins. By late April some fields in the southern area ranged from 8-35 per sweep along the margins. ARMYWORM (*Pseudaletia unipuncta*) fourth and fifth instar overwintering larvae were found in March and early April over the southern half of the State with the heaviest numbers 1-2 per square foot of prairie grasses in the west central area. Economic infestations were present the first week of May in southeast and southwest areas. By late May, heavy damage to barley was occurring in southwest, west central and parts of the central area where counts of 2-4 larvae per square foot were common. A species of *Apanteles* wasp was very numerous and by the first of June had reduced populations 50-90 percent. Light numbers of 1-4 larvae per square foot of wheat and barley continued until mid-June over the northern half of the State. Damage to barley by cutting heads ranged from 10 percent to total destruction in the areas of heavy infestations, while wheat and winter oats ranged from 5-40 percent damage. WHEAT HEAD ARMYWORM (*Faronta diffusa*) occurred with armyworm in a ratio of 1-10 to 1-20 over the State causing light damage to heads of barley, winter oats, wheat and rye. ENGLISH GRAIN APHID (*Macrosiphum granarium*) early spring populations ranged from 0-2 per foot of drill row in southwest area to 4-25 per foot of drill row in southeast area. Numbers over southern half of State by the end of May averaged 6-33 aphids per head of wheat, some with 200 or more aphids. Populations declined early in June except on late wheat and spring seeded oats where counts averaged 12-55 and 6-35 aphids per head. Several fields of late wheat in the west central area had the quality reduced by aphids feeding on the kernels during the milk and soft dough stage. Parasites, predators and a fungus disease plus development of grain eliminated the problem by mid-June. HESSIAN FLY (*Phytophaga destructor*) caused moderate to heavy damage in four east central counties ranging from 17.2 to 29.2 percent of stems with "flaxseed." The average for 65 counties surveyed was 3.4 percent of stubble with 1 or more flaxseed. WHEAT JOINTWORM (*Harmolita tritici*) infestation was much less than in 1954, generally. A few fields in west central area showed 1-3 percent damage. CHINCH BUG occurred in moderately high numbers and built up in small grains generally in the west central and northern half of State with counts up to 22 per foot of drill row. GRASSHOPPERS (largely M. differentialis and M. bivittatus) caused considerable injury to developing heads of spring-seeded oats in scattered localities of southwest and northwest areas. Other small grains had leaf feeding damage in these areas.

Legume and Pasture Insects

CLOVER LEAF WEEVIL (Hypera punctata) leaf-feeding damage began early with counts 3-18 per square foot of red and Ladino clover and 1-7 per square foot of alfalfa by early April. A rapid buildup of a fungus disease in mid-April largely eliminated damage by the last of April. Emerging adult weevils caused considerable damage to new growth alfalfa following first cutting in several southwestern counties. A few fields required spraying for adult control to enable new growth to get started. CUTWORMS (Feltia subgothica and Agrotis gladiaria), largely dingy cutworm, caused considerable injury to red Ladino clover, alfalfa and pastures over southern two-thirds of State by early April. By late April damage became heavy as the larvae matured. A species of Apanteles wasp reduced populations 55 - 70 percent in many fields in southwest and central areas.

ARMYWORM spring generation larvae, from 2-12 per square foot, caused economic damage to local fields of fescue and pastures in scattered areas of southern two-thirds of State. Light infestations of BLUEGRASS WEBWORM (Crambus teterrellus) occurred in bluegrass pastures in the northern half of State. VAGABOND CRAMBUS (Crambus vulgivagellus) with Epizeuxis lubricalis, but mainly Crambus, totally destroyed areas of volunteer grass in many drought-injured pastures in the southwest area. Counts in late April and early May were 6-22 per square foot. A SKIPPER (Atalopedes campestris) caused light to moderate damage to pasture grasses in several of the extreme southwestern counties. WHEAT STEM MAGGOT (Meromyza americana) and A SILVER TOP MITE (Siteroptes graminum) destroyed from 1-2 percent of stems and heads of bluegrass in seed-producing areas of northwest section.

VARIEGATED CUTWORM (Peridroma margaritosa) infestation and damage was much less than 1954. Populations of PEA APHID (Macrosiphum pisi and CLOVER APHID (Anuraphis bakeri) were light. Mixed populations of CLOVER ROOT CURCULIO (Sitona hispidula) and SWEETCLOVER WEEVIL (Sitona cylindricollis), largely clover root curculio, caused light to heavy damage to red, alsike and sweetclover and alfalfa over the State. LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - By late May most red clover fields showed from 15-60 percent of buds and stems damaged while a few third or fourth year fields had 80-98 percent damaged stems and buds over the northern two-thirds of the State. Damage by this insect has been steadily increasing during the last three years. SPOTTED ALFALFA APHID See section on New Records. POTATO LEAFHOPPER (Empoasca fabae) caused moderate to heavy yellowing of alfalfa by late July over southern two-thirds of State with 2-16 per sweep. Other Empoasca species and six-spotted leafhopper occurred on pasture grasses in the spring although 5-13 per sweep apparently caused very light damage. BLISTER BEETLES - Small spots in many alfalfa fields were largely stripped by bands of Epicauta sp. In September, E. pennsylvanica occurred uniformly over the State, 8-46 per square yard, causing considerable injury to blooms and terminal growth of alfalfa. GARDEN WEBWORM infestations on alfalfa by late July had from 10-65 percent of plants with 1-7 larvae. Following the harvest, infestations failed to rebuild over most of State.

TARNISHED PLANT BUG (Lygus lineolaris) counts averaged 0. 5 to 1. 5 per sweep on alfalfa and red clover in May to 2-8 per sweep in mid-June to October over most of State. Seed yields of both alfalfa and red clover were reduced by feeding over northern half of State. GREEN CLOVERWORM (Plathypena scabra) numbers were light on alfalfa in southeast area in late April. A very few fields of late soybeans in the southeast area lost considerable foliage in late September. ALFALFA CATERPILLAR (Colias philodice eurytheme) was very light, apparently held at a low level by a tachina fly. CORN EARWORM populations and damage were low, on both alfalfa and soybeans over southern half of State. THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - Late September and early October found nymphs and adults in light to moderate numbers on alfalfa over the southern half of the State with heaviest infestation confined to extreme southwest and southern two tiers of counties. A few fields of alfalfa in Stone and Barry Counties averaged 1-2. 5 adults per sweep with one field showing 23 percent of stems girdled. Surveys showed adults or girdled stems in the following counties: Stone, Barry, McDonald, Newton, Jasper, Lawrence, Christian, Greene, Polk, Dallas, Gasconade, Franklin, Washington, and New Madrid. This is an unusual record. GRASSHOPPERS (M. differentialis, M. femur-rubrum, M. mexicanus) damage to alfalfa, red clover and pastures began in late May and continued in varying degrees until late September. BEAN LEAF BEETLE (Cerotoma trifurcata) damaged germinating soybeans in extreme southeast area as early as April 23. Infestations were generally light until early August when light damage occurred to blossoms, newly formed pods and foliage. Damage was considerably less than the preceeding two years. Widely-scattered, light infestations of BRONZED CUTWORM (Nephelodes emmedonia) occurred in pasture grasses throughout State.

Fruit Insects (Reported by W. R. Enns)
A severe freeze in late March eliminated a fruit crop in the southern half of State except strawberries and brambles. CODLING MOTH (Carpocapsa pomonella) infestations increased slightly over 1954. Good commercial control was obtained by most growers. Light infestations of RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) appeared in widely-scattered orchards in northern half of State. Moderate to severe infestations of FORBES SCALE (Aspidiotus forbesi) occurred in a few unsprayed peach orchards in southeast area. Some scattered apple orchards in northern half of State had light to severe infestations. FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata) was more severe than in preceeding two years in young plantings over State. PLUM CURCULIO (Conotrachelus nenuphar) populations and damage to apples and peaches increased noticeably over past two years. GRASSHOPPERS (primarily M. differentialis) caused local, severe defoliation of young plantings in southeast, southwest and central areas. TWO-SPOTTED

SPIDER MITE, in unsprayed orchards where freeze eliminated a crop, heavy infestations built up in late July and August resulting in severe bronzing and defoliation. PEACH TREE BORER (Sanninoidea exitiosa) populations and damage continued to increase in peach orchards particularly in the southern half of State. A LEAF MINER (Callisto geminatella) caused extensive foliage injury of apples generally. Infestations have been increasing since 1953 and probably are approaching the peak. GREEN JUNE BEETLE (Cotinis nitida) adults were a problem on early maturing apples, peaches and pears until mid-August in scattered areas of the State. ORIENTAL FRUIT MOTH (Grapholitha molesta) caused moderate to severe twig injury generally to several young peach orchards and to some unsprayed older orchards. GRAPE PHYLLOXERA (Phylloxera vitifoliae) leaf galls were unusually abundant on susceptible varieties over State.

Cotton Insects (Reported by G. W. Thomas and Lee Jenkins)

SEED CORN MAGGOT caused light damage to germinating seed ranging from 0.5 to 3 percent in several fields. THRIPS averaged only one per leaf, highest count. COTTON APHID (Aphis gossypii), by early June, economic numbers had built up in small spots of widely scattered fields throughout cotton area. Infestations dropped during July and August but built up in September. GRASSHOPPERS (M. differentialis, M. mexicanus and M. femur-rubrum).- Scattered nymphal infestations over most of the area caused some marginal damage. PLANT BUGS (Psallus seriatus, Lygus lineolaris and Adelphocoris rapidus) - By mid-July approximately one of every 6 fields had 2-66 nymphs and adults per 100 terminals. Populations then dropped to non-economic levels until mid-August when one of every 5 fields of late cotton had counts of 25-65 per 100 terminals with the rapid plant bug the predominate species in rank fields. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused light marginal injury, with average of 3-5 mites per leaf in late July and by mid-August marginal and spots of individual fields had severe bronzing and loss of foliage commonly throughout area. Populations declined to non-economic levels by late August. BOLL WEEVIL (Anthonomus grandis) - Very few weevils successfully overwintered resulting in almost no early season damage with a few late fields having from 4-20 percent of squares and small bolls damaged in Ripley, Butler, and Dunklin Counties. BOLLWORM (Heliothis zea) - Mid-August moth activity and egg deposition increased considerably with counts 3-18 eggs and 0-14 small larvae per 100 terminals. By late August infestations ranged from very light to heavy over the area with rank, dense cotton most heavily damaged. Predators were numerous in most fields during the bollworm period. ROOT KNOT NEMATODES heavily damaged several fields. Cotton leafworm, leafhoppers, leaf rollers and cabbage looper occurred in non-economic numbers.

Forest and Shade Tree Insects (Reported by W. D. Buchanan and G. W. Thomas)

OAK TIMBERWORM (Arrhenodes minuta) continued as worst pest of the oak lumber industry of the Ozark region. A high percentage of the cut timber down-graded. LITTLE CARPENTERWORM (Prionoxystus macmurtrei) continued to attack approximately one-fifth of injured or blazed oak trees over much of the Ozark region. FLATHEADED APPLE TREE BORER - Heavy infestation and damage continued generally in several species of forest and shade trees. Requests for control of POWDER POST BEETLES (Lyctus spp.) were frequent, especially from the southern half of the State where infestations were largely in oak flooring. Heavy damage was reported by several hickory handle mills scattered throughout the Ozark region. First generation infestation of NANTUCKET PINE MOTH (Rhyacionia frustrana) less than last three years except in a few pine wind-break plantings in extreme southeast area. Second generation was very light generally. Very heavy infestations of SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) occur over State on American elm, with many trees being destroyed. Very heavy populations of APHIDS occurred on several species of shade and forest trees over much of the State in May and June. Heavy infestations on elms occurred in the fall. EUROPEAN ELM SCALE (Gossyparia spuria) was moderate to very heavy on native elms over much of the central area. Many shade and forest trees, especially elms,were very heavily infested with several species of leafhoppers causing premature leaf-drop. Generally heavy infestations of ELM LEAF BEETLE (Galerucella xanthomelaena) damaged Chinese elms and, to a lesser extent, native elms in counties bordering the Mississippi River south of St. Louis and extreme southeast Missouri.

OAK PRUNERS (especially Hypermallus villosus) heavily damaged red and black oaks in the Ozark region. GREEN-STRIPED MAPLEWORM (Anisota rubicunda) infestation and damage were slightly less than in 1954 with heaviest injury in central and northwest areas where larvae defoliated soft maple trees 25-95 percent. WALNUT CATERPILLAR (Datana integerrima) infestation and damage were considerably less than in 1954 although widely scattered areas of the southern two-thirds of the State had from 20-75 percent defoliation. VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - In early July, a local outbreak confined to the central Ozarks, especially Maries and Phelps Counties, from 10-75 percent defoliated both red and white oaks. BAGWORM (Thyridopteryx ephemeraeformis) - Heaviest infestation in past three years over the southern two-thirds of the State with evergreens, boxelder, willow and several other trees and shrubs largely defoliated. MIMOSA WEBWORM (Homadaula albizziae) infestation spread from a single record in Pemiscot County in 1954 to include all Pemiscot, Dunklin and New Madrid Counties.

Insects Affecting Man and Animals (Reported by C. W. Wingo)
CATTLE GRUBS were about normal but considerably heavier than in past few years especially over western half of State. CATTLE LICE (Bovicola bovis and Linognathus vituli) occurred in moderate to heavy numbers over most of State. HORN FLY (Siphona irritans) buildup began in mid April and populations were heavier than in past two years. Unsprayed cattle averaged 100-125 per head in July while calves averaged 450-500 per head. STABLE FLY (Stomoxys calcitrans) averaged 30 flies per head of untreated cattle in mid-July. TABANIDS - Locally heavy numbers of Tabanus carolinensis occurred on cattle and other live-

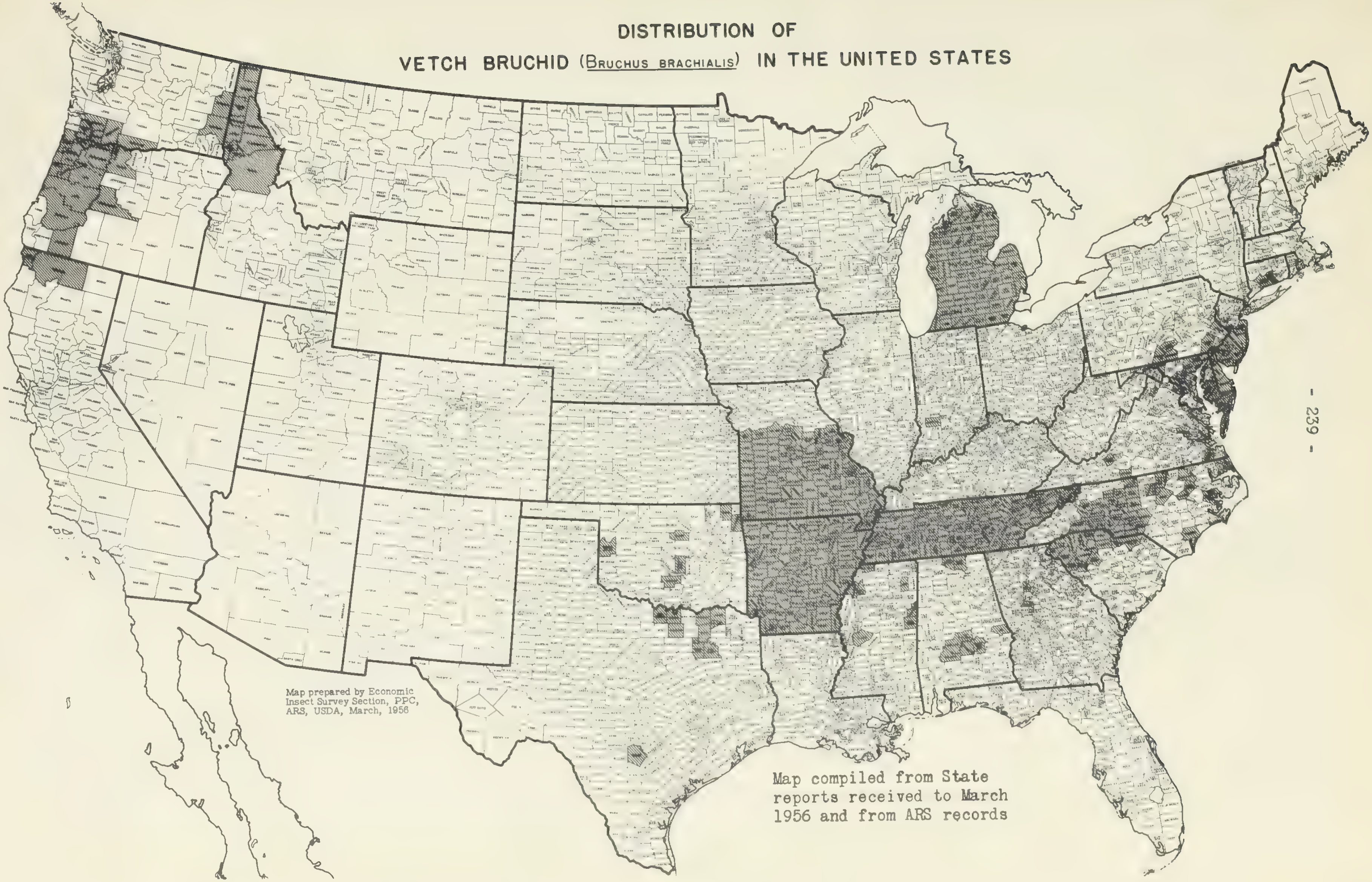
stock in Shannon County in late April, counts 5-15 per animal. T. sulcifrons averaged less than one per head of cattle in late July and early August. Populations of Chrysops spp. occurred in higher numbers than in past two years in the central area. Other pests occurring in normal or slightly above normal populations included lone star tick, hog louse, sheep biting louse, sheep ked, chicken mites, black widow spider, chiggers, fleas, house fly and mosquitoes.

Stored Product Insects

Some scattered, light-to-moderate infestations of RICE WEEVIL (Sitophilus oryza) occurred in wheat, barley and corn over the southern half of State. FLOUR BEETLES (Tribolium confusum and T. castaneum) were the most common pests of farm-stored grain, occurring in moderate numbers in wheat, oats, barley and shelled corn. SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was the second most common pest in all farm-stored grain. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) populations gradually increased and light field infestations in summer on corn occurred over the southern two-thirds of the State. INDIAN-MEAL MOTH (Plodia interpunctella) caused considerable damage early in August to farm-stored wheat in scattered or local areas of southern two-thirds of State.

Other stored grain pests that occurred either in very light numbers or caused light, local damage in a few instances included the following: FLAT GRAIN BEETLE (Laemophloeus pusillus), CADELLE (Tenebroides mauritanicus), BLACK CARPET BEETLE (Attagenus piceus), GRAIN MITES and PSOCIDS. VINEGAR GNATS (Drosophila spp.) heavily infested ripening and overripe fruits and vegetables during early fall. Adults were annoying in many farm homes over State. SILAGE MAGGOTS (Chrysomyza demandata and Hermetia illucens) - Widely scattered instances of heavy infestations of the former in rotting ensilage of trench silos. The latter species occurred in a very few trench and upright silos in the southern third of State.

DISTRIBUTION OF VETCH BRUCHID (*Bruchus brachialis*) IN THE UNITED STATES



Map prepared by Economic
Insect Survey Section, PPC,
ARS, USDA, March, 1956

Map compiled from State
reports received to March
1956 and from ARS records

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